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PREVALENCE, KNOWLEDGE, ATTITUDE, AND RISK FACTORS FOR HEPATITIS B AMONG RESIDENTS OF A RURAL COMMUNITY IN DELTA STATE, NIGERIA.

Regina O. Ovih* and Joshua F. Eniojukan

Department of Clinical Pharmacy and Pharmacy Practice,
Faculty of Pharmacy, Niger Delta University,
Wilberforce Island, Bayelsa State, Nigeria

*Corresponding Author's Email: omorovih@gmail.com; Tel.: 09064337906

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ABSTRACT: *Hepatitis B remains a significant public health issue. Many Countries in Sub-Saharan Africa have a considerable burden of Hepatitis B, with prevalence rates ranging from 8% to 11% among adults which is influenced by various factors including awareness, knowledge, attitude, and risk factors. This study aims to assess the prevalence, knowledge, attitudes, and prevalence of risk factors for Hepatitis B among participants resident within Ikweghwu Community in Delta State. A cross-sectional study design involving 376 participants was carried out. Data were collected through a semi-structured questionnaire, to assess awareness, knowledge, Attitude, and risk factors for Hepatitis B. Also a small quantity of blood for rapid testing among participants. Statistical analysis was done using descriptive and inferential statistics including Chi-square, correlation to identify patterns and associations. There were more females. High awareness levels were significantly associated with reduced Hepatitis B seroprevalence ($p < 0.0001$; RR=0.0417). Knowledge of risk factors, causes, transmissions, symptoms, and prevention strategies showed strong inverse relationships with seroprevalence ($p < 0.0001$). Self-reported Prevalence was highest among individuals aged 25-34 years, with seroprevalence observed exclusively in this age group. Positive attitudes towards prevention and treatment also correlated with lower seroprevalence ($p < 0.0001$). Conversely, a higher prevalence of risk factors was positively associated with increased Hepatitis B seroprevalence ($p = 0.0097$).The study highlights the critical role of awareness, comprehensive knowledge, and positive attitudes in reducing Hepatitis B seroprevalence. Targeted educational interventions, positive attitudes toward prevention are essential for effective Hepatitis B control. Further research is needed to explore these relationships in diverse populations and to evaluate the impact of specific public health strategies.*

KEYWORDS: Hepatitis B, Prevalence, KAP, Risk factors, Rural Community, Delta State, Nigeria.

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BACKGROUND

Hepatitis B has been defined as a viral infection that affects the liver, causing acute and chronic disease, including liver cirrhosis and hepatocellular carcinoma (liver cancer) (Shen *et al*, 2023). Hepatitis B virus (HBV) infection is a significant global health concern, affecting millions of individuals and posing a substantial burden on healthcare systems worldwide (Martyn *et al*. 2023). The World Health Organization (WHO) estimates that over 296 million people are living with chronic hepatitis B infection (Hsu et al. 2023). Despite the availability of antiviral therapies and effective vaccines, HBV continues to cause over 800,000 deaths annually, with sub-Saharan Africa bearing a disproportionately high burden of the disease (Núñez, Sreeganga, and Ramaprasad, 2021).In Nigeria, hepatitis B is classified as a public health priority due to its high prevalence. The country is considered to have intermediate to high endemicity, with prevalence rates varying widely across regions and communities (Nejo *et al*. 2018; Ajuwon *et al*. 2021). Transmission of the virus occurs predominantly via unsafe medical practices, close interpersonal contact, and perinatal exposure, including sexual transmission. However, the control of hepatitis B in Nigeria faces significant challenges, such as inadequate knowledge, limited awareness about the disease, and insufficient access to vaccination programs, especially in rural communities (Froeschl *et al*. 2021).

Delta State, located in the southern region of Nigeria, is no exception to the Hepatitis B burden. Within Delta State, the Ughelli North Local Government Area, encompassing communities like Ikweghwu in Agbarho, faces its share of public health challenges, including Hepatitis B. However, there is a paucity of study specifically addressing the prevalence, and knowledge for Hepatitis B within this community (Dwiartama *et al*. 2022). A clear understanding of the unique dynamics of Hepatitis B within communities like Ikweghwu in Agbarho is crucial for designing targeted interventions and policies to mitigate the impact of the disease. This has informed the present study which aims to investigate the correlations between prevalence, knowledge, attitudes and risk factors for HBV among residents of Ikweghwu community in Agbarho, Delta State, Nigeria.

Specific Objectives

To determine, among the residents of Ikweghwu community in Agbarho, Delta State, Nigeria:

- The prevalence, knowledge and attitude about Hepatitis B virus (HBV) infection
- The possible risk factors for Hepatitis B transmission
- The possible determinants of test prevalence of hepatitis B

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METHODS

Study Setting

The study was conducted at Ikweghwu in Agbarho, Ughelli North Local Government Area of Delta State with geographical coordinates of latitude $05^{0}34'$N and longitude $05^{0}53'$E (Onyekwere, Okoroafor, and Okonkwo, 2019). Delta State is located in the Niger Delta region, a south geopolitical zone in Nigeria; sharing a link landmark with Edo to the North, Anambra on the eastern side, and Bayelsa on the southern part while to the west, it shares a boundary with the Bight of Benin to the Atlantic Ocean. It is a semi-rural area with the majority of its residents being civil servants, farmers, and small-scale business owners. Study area has three health care facilities, comprising one public primary health care centre, and two privately owned secondary health care facilities situated at the northern and southern part of the study area.

Study Population

The target population used for the study was adolescents and adults ages 15 and above, who were residents of the Ikweghwu community. The choice of a familiar terrain and convenience promoted the use of the study area. The projected population size obtained for the study area was 2,521, as was obtained from the Delta State Office of National Population Census.

Study Design

A cross-sectional study design was utilized,

Sample Size

Sample size determination

Using the Taro Yemeni formula (1967) formula to determine sample size, n

Sample size n = "N" /("1 + N(e")^2 "")

Where N= population size

e = the desired margin of error (expressed as a decimal, typically between 0.01 and 0.05)

Sample size = 2,521

Substituting into the formula above

n = 2521/[1 + 2521(0.0025)]

n = 2521/7.3025

n = 345

10% attrition

The total sample size = 380

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Data collection technique

Data were collected through a semi-structured questionnaire (Eni *et al.*,2019; Agbesanwa, 2023) for respondents to fill, after which a small volume of blood sample was collected from each participant upon obtaining their consent for Rapid diagnostic testing to determine Hepatitis B seroprevalence. A total of 500 questionnaires were administered to respondents to fill out. However, only 376 persons responded appropriately and were used for analysis.

A simple random sampling technique was employed in selecting a representative in a household within the age range, making an equal chance of selection, which was done basically by balloting.

Blood Testing for HBV

Test card used was one -step rapid hepatitis B test strip. Mechanism for sensitivity involves chromatographic immunoassay for qualitative detection of surface antigen in serum, to produce coloured band. Site to be used was cleaned, tied using tourniquet, small blood was drawn (2ml) after piercing through the skin into the veins. Obtained blood was spinned to separate serum. Test strip was then immersed into sample with arrow head pointing into sample for about 15 seconds. It was then removed and read after 15 minutes.

Statistical analysis

Data analysis was done using descriptive and inferential statistics to answer questions, cheek associations, and test hypotheses. Before the data were analyzed, they had already been pre-coded to ensure confidentiality. Data were then re-coded before they were transferred to Microsoft Excel and analyzed using Statistical Package for social sciences (SPSS) version 27. Various Statistical Methods were employed in data analysis, including chi-square, correlations to determine significance and associations between variables.

Ethical considerations

The survey instrument received formal ethical approval from the Ethical Committee, Delta State Ministry of Health Asaba, Delta State, Nigeria. Informed consent was obtained from each participant before data collection. Confidentiality of participant's information was maintained throughout the study process. Participants were informed of the study objectives, the right to withdraw at any point of the study process, and the availability of anonymous testing. Also, they were informed that there wouldn't be any form of compensation for participating in the study.

Inclusion / Exclusion criteria

All adults and adolescents 15 years and above, who were residents of the Ikweghwu community for more than six months were included in the study. Residents of other communities were excluded from the study.

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RESULTS

A total of 500 questionnaires were distributed but only 376 recovered were usable giving a response rate of 75.20%

Demographic Characteristics of Respondents.

Table 1 provides the demographic characteristics of the 376 participants enrolled in the study.

Table1. Demographic data of participants

Variables		Frequency (N)	Percentage (%)
Age (yrs)	15-24	135	35.90
	25-34	143	38.03
	35-44	58	15.43
	45-54	40	10.64
Gender	Male	140	37.2
	Female	236	62.8
Education	Primary 6	82	21.8
	O-Level	115	30.6
	OND/HND/BSC	153	40.7
	Master/PhD	26	6.9
Marital status	Single	194	51.6
	Married	174	46.3
	Divorced	8	2.1
Religion	Christianity	368	97.9
	ATR	8	2.1
Occupation	Civil service	245	65.2
	Farming	131	34.8
Business	Small scale	218	58.0
	Medium scale	158	42.0

From **Table 1,** majority of the respondents were young adults aged 15 to 24 (135, 35.9%) and 25 to 34 years (143;38.03%); there were more females (62.8%); 40.7% were holders of OND/HND/BSC degree certificates whereas 30.6% have O' Level certificates. There were 51.6% Single and 46.3% married people; Christians were in the large majority (97.9%); 65.2% were employed in the civil service.

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Prevalence of Hepatitis B among residents of the Ikweghwu community

A total of 8 respondents (2.1%) acknowledged having HBV infection. This translates to 213 cases per 10,000 individuals; 368 participants (97.87%) reported not having the infection. The seroprevalence data, derived from actual diagnostic testing, reveals that only 2 individuals (0.53%) tested positive for Hepatitis B. translating to 53 cases per 10,000 individuals; 374 participants (99.5%), tested negative for the infection. Sixteen respondents (4.5%) knew someone with the infection, whereas 360 respondents (95.7%) did not. See Table 2

Table 2. Prevalence of Hepatitis B among residents of the Ikweghwu community.

Variables		Frequency (N)	Percentage (%)	In 100 persons	In 10,000 persons
Reported prevalence	Yes	8	2.1	21.3	213
	No	368	97.9		
Test prevalence	Yes	2	0.53	5.3	53
	No	374	99.5		
Do you know anybody with a Hepatitis B infection?	Yes	16	4.3		
	No	360	95.7		

Awareness and Sources of Information about HBV by Respondents

A total of 63.03% of the respondents claimed to be aware of HBV. Mostly reported sources of information included Internet (51.3%), Radio (49.2%), Television (47.3%), Newspaper (41.5%), Church/Mosque (35.6%) and Friends (30.3%). See Table 3 for details.

Table 3. Awareness and Sources of Information about HBV by Respondents

Variables		Frequency (N)	Percentage (%)
Are you aware of the disease called Hepatitis B	YES	237	63.03
	NO	139	36.97
Sources of Information	Internet	193	51.3
	Radio	185	49.2
	Television	178	47.3
	Newspaper	156	41.5
	Church/Mosque	134	35.6
	Friends	114	30.3
	Family	111	29.5
	School	110	29.3
	Others	109	29.0

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Knowledge about Hepatitis B among residents of the Ikweghwu community

A thorough examination of participants' knowledge of hepatitis B (n=376) is given in Table 4. Regarding aetiology, 33.0% opined that HBV has a bacterial origin; 35.9% were sure HBV is not bacterial in origin while 31.1% were not sure.

Regarding susceptibility,74.5% said that anyone can contract Hepatitis B; 9.6% of respondents were unsure and 15.96% disagreed with this statement, Regarding means of transmission, 14.6% of the participants opined that Hepatitis B is a disease that is spread through the air, 69.4% of them disagreed with this assertion and 16.0% expressed uncertainty; 72.9% of respondents acknowledged sexual transmission, 6.7% disagreed, and 20.5% were doubtful; 61.7% of respondents agreed that shared toothbrushes have a role in transmission; 21.8% disagreed, and 16.5% were not sure.

About the disease's resolution, 19.68% of participants opined that Hepatitis B could be cured without medical intervention; 60.6% of respondents recognized the need for treatment, while 19.7% expressed uncertainty.

Regarding knowledge of Hepatitis B symptoms, 64.1% of the respondents identified yellowish eyes as one of the symptoms, 10.90% disagreed and 22.9% were unclear.

Regarding Risk posed by the infection, 71.3% of respondents were aware of the risk that people with Hepatitis B pose to others, 22.1% were unsure and 6.7% disagreed; 76.6% of participants acknowledged transmission by mother-to-child, 12.5% were unsure and 10.90% disagreed; 74.2% of respondents agreed that Hepatitis B is a serious condition, while 10.90% disagreed and 14.9% were unsure. Regarding Vaccination, 75.00% of participants understood the importance of vaccinations and other preventive measures while 12.0% disagreed and 13.0% were unclear. Also, 1.3% disagreed and 20.2% were unsure, but the great majority of respondents (76.3%) correctly recognized that Hepatitis B can result in serious health concerns. See Table 4 for details

Table 4 Level of knowledge about Hepatitis B among residents of the Ikweghwu community. (n=376)

Variables ***General Knowledge of Hepatitis***	**Yes** **N (%)**	**No** **N (%)**	**Not Sure** **N (%)**
Hepatitis B is a Bacterial infection	124(33.0)	135(35.9)	117(31.1)
Hepatitis B can affect any individual	280(74.5)	60(16.0)	36(9.6)
Hepatitis B is an airborne disease	55(14.6)	261(69.4)	60(16.0)
Hepatitis B can resolve without treatment	74(19.7)	228(60.6)	74(19.7)
Hepatitis B can present symptoms of yellowish eyes	241(64.1)	41(10.9)	86(22.9)
Any individual affected by hepatitis B can pose a risk to others	268(71.3)	25(6.7)	83(22.1)
Hepatitis B is not a disease condition	71(18.9)	197(52.4)	108(28.7)
Hepatitis B may be a bacterial infection	161(42.82)	116(30.9)	99(26.3)
Hepatitis B can be transmitted from mother to child	288(76.60)	41(10.9)	47(12.5)
Hepatitis B may be a very serious condition	279(74.20)	41(10.9)	56(14.9)

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Someone can take the vaccine to prevent hepatitis B	282(75.0)	45(12.0)	49(13.0)
Hepatitis B can result in serious health conditions	287(76.3)	5(1.3)	76(20.2)
Hepatitis B can be transmitted from one person to another	290(77.1)	25(6.7)	61(16.2)
Hepatitis B is a curable condition	175(46.5)	71(18.9)	130(34.6)
Hepatitis B can be transmitted through sex	274(72.9)	25(6.65)	77(20.5)
A child can acquire Hepatitis B from the mother through birth	292(77.7)	35(9.3)	49(13.0)
Someone can contact Hepatitis B by sharing of toothbrush	232(61.7)	82(21.8)	62(16.5)

Attitude and possible risk factors for hepatitis B transmission and infection

A notable 38.6% (145) expressed that they do not mind being with a partner infected with Hepatitis B, while 35.1% (132) were unsure, indicating potential ambivalence or lack of awareness about the disease's implications. Only 12.5% (47) believed that Hepatitis B is a disease for the wealthy, whereas 65.4% (246) disagreed, suggesting that most participants do not associate the disease with socioeconomic status.

About 32.2% (121 participants) believed they could not be infected by Hepatitis B, while 37.2% (140 participants) disagreed, and 30.6% (115) were unsure. This indicates a substantial misconception about personal susceptibility to the virus. A significant 42.0% (158) did not believe Hepatitis B could be spread through contact with an infected person, while 40.2% (151) disagreed, highlighting a critical gap in understanding the modes of transmission. Only 27.1% (102) felt unconcerned about Hepatitis B due to no family history of the disease, while 52.4% (197) disagreed, reflecting a reasonable awareness that Hepatitis B can affect anyone regardless of family history.

A notable 18.9% (71 participants) had no reservations about sharing sharp objects, which poses a significant risk of transmission. However, 61.2% (230) disagreed, indicating a better understanding of the risks involved. About 29.0% (109) did not believe vaccination could help prevent Hepatitis B, while 53.2% (200) recognized the importance of vaccination, indicating a need for more educational campaigns about the effectiveness of vaccines. A significant 27.7% (104) believed that infected persons could be treated locally without medical care, while 51.9% (195) disagreed, highlighting a prevalent belief in alternative treatments, which could be dangerous. More than half, 58.5% (220), recognized Hepatitis B as a serious public health concern, demonstrating substantial awareness of the disease's impact on public health.

Only 24.5% (92) expressed no current concern about Hepatitis B, while 47.6% (179) were concerned, indicating that a significant portion of the population is aware of and concerned about the disease. About 30.6% (115) did not consider Hepatitis B a general concern, while 35.6% (134) did, suggesting varying levels of awareness and concern about the disease. See Table 5.

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Table 5. Attitudes towards Hepatitis B(n=376)

Variables *Attitudes towards Hepatitis B*	Yes N (%)	No N (%)	Not Sure N (%)
I don't mind being with Hepatitis B if my partner is infected	145(38.6)	99(26.3)	132(35.1)
Hepatitis B is only for rich people	47(12.5)	246(65.4)	81(21.5)
I don't believe anybody can infect me with Hepatitis B	121(32.2)	140(37.2)	115(30.6)
I don't think Hepatitis B can be spread through contact with an infected person.	158(42.0)	151(40.2)	67(17.8)
No one in my family has Hepatitis B, and so it is not my concern.	102(27.1)	197(52.4)	77(20.5)
I don't have reservations about sharing sharp objects with anyone	71(18.9)	230(61.2)	75(20.0)
I don't think vaccination could help prevent Hepatitis B	109(29.0)	200(53.2)	67(17.8)
Infected persons can be treated locally without seeking medical care	104(27.7)	195(51.9)	77(20.5)
Hepatitis B is a serious Public Health concern	220(58.5)	111(29.5)	45(12.0)
Presently I do not have any concerns about Hepatitis B	92(24.5)	179(47.6)	105(27.9)
Hepatitis B is not a general concern	115(30.6)	134(35.6)	127(33.8)

Possible determinants of test-prevalence of hepatitis B among residents of Ikweghwu Community

This detailed analysis investigates the possible determinants of Hepatitis B seroprevalence, examining factors such as awareness, knowledge, and attitudes and their impact on the prevalence of Hepatitis B among the studied population. The seroprevalence of Hepatitis B in the study population was 0.53%, serving as the reference point for analyzing other determinants **(Table 6).**

Table 6 Possible Determinants of Hepatitis B test-prevalence

			Fisher's Exact Test			*Linear Regression*					
	Yes	*No*	*Sig.*	*RR*	*95% Confidence Interval*	*Slope*	*Sig of slope*	*R*	r^2	*Sy.x*	*F*
Seroprevalence	0.53	99.5	Reference								
Awareness	63.0	37.0	< 0.0001	0.01587	0.002244 to 0.1123	-0.2651	0.0068	-0.9999	0.9999	0.2298	8772.8
General Knowledge	51.3	48.7	< 0.0001	0.02875	0.004112 to 0.2010	-0.03407	0.2138	-0.9441	0.8914	0.9659	8.204
Knowledge of Risk Factors	48.1	52.0	< 0.0001	0.03113	0.004456 to 0.2174	0.04771	0.1779	0.9612	0.9239	1.112	12.138
Knowledge of Causes and Transmission	62.8	37.2	< 0.0001	0.02146	0.003061 to 0.1505	-0.2609	0.0115	-0.9998	0.9997	0.3812	3086.6

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Knowledge of Symptoms	59.3	40.7	< 0.0001	0.02357	0.003363 to 0.1652	-0.1913	0.0223	-0.9994	0.9988	0.5436	816.85
Knowledge of Prevention	64.9	35.1	< 0.0001	0.02051	0.002923 to 0.1439	-0.3036	0.0076	-0.9999	0.9999	0.2945	7005.7
Attitudes Towards Hepatitis B	31.1	69.0	< 0.0001	0.05303	0.007669 to 0.3667	0.3999	0.0451	0.9975	0.9950	2.305	198.42
Prevalence of Risk Factors	9.6	90.4	0.0097	0.1736	0.02664 to 1.131	0.8922	0.0913	0.9897	0.9796	10.464	47.927

DISCUSSION

This study was carried out among 376 residents of a semi-rural community, Ikweghwu community, in Delta State, Nigeria. It sought to determine among others, the prevalence of Hepatitis B infection, Awareness and Knowledge level and correlates of Hepatitis B infection among the community residents.

Demographic data

Majority of the respondents were young adults aged 15 to 34 (73.93%) and predominantly females (62.8%); who were well educated as holders of OND/HND/BSC degree certificates (40.7%) and O' Level certificate holders (30.6%). About half of the residents (51.6%) were unmarried (Single) and 46.3% married people; the resident were almost exclusively Christians (97.9%) that were employed in the civil service (65.2%). This profile gives a picture of an elite community who should be on top of their health situation.

Prevalence

The reported data shows a notable discrepancy between self-reported Hepatitis B infection rates and the actual seroprevalence from diagnostic testing. Whereas 2.1% of the participants claimed they had Hepatitis B, translating to a rate of 213 cases per 10,000 individuals, Sero-prevalence following diagnostic testing revealed that 0.53% tested positive for the virus, which translates to 53 cases per 10,000 individuals. This indicates a significant four-fold reduction when comparing self-reported data to lab-confirmed cases.

Additionally, 16 respondents (4.3%) reported knowing someone with Hepatitis B, while the vast majority (360 respondents, or 95.7%) did not.

The gap between the self-reported prevalence (2.1%) and the confirmed prevalence (0.53%) suggests that individuals might misreport their Hepatitis B status. This could be due to misunderstanding or misdiagnosis, or even a lack of awareness of their actual health status.

The difference in numbers highlights the importance of reliable diagnostic testing over self-reported data when estimating disease prevalence. Self-reports, while useful for understanding perceived disease burden, may not always reflect true infection rates. The lower rate from testing indicates that a significant portion of people who think they have Hepatitis B may not be infected. The data implies possible under-reporting or misreporting of the infection. Under-reporting can occur when individuals are unaware of their infection due to the asymptomatic

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nature of Hepatitis B in many cases, while misreporting might happen if people believe they have the disease without a proper diagnosis.

The findings stress the importance of public health education to ensure that individuals are accurately informed about Hepatitis B and encouraged to undergo confirmatory diagnostic testing. Testing is essential to get a true sense of prevalence of the disease and to identify and treat those who are infected. Thus, the discrepancy between self-reported and confirmed Hepatitis B cases emphasizes the need for more reliable and widespread testing to assess the true scale of the infection. Public health campaigns could also focus on improving awareness and access to diagnostic services to close this gap between perception and reality.

Sero-prevalence data from this study is in-congruent with other literature reports which range from 7.5% among beauticians in Yenagoa (Abel *et al*. 2023)to 10.6% among patients undergoing haematological analysis in the Niger Delta University Teaching Hospital (Obeagu *et al*. 2024)

The consistently higher prevalence in other studies may be due to factors such as occupational risks, regional variations and sample types. For instance, one explanation for the discrepancy reported by Abel *et al* 2023 could be related to the occupational risks associated with beauticians who handle sharp objects like razors, scissors, and needles, which can lead to higher exposure to blood-borne pathogens like Hepatitis B. Similarly, study conducted by Obeagu *et al*. (2024) involved individuals already seeking hospital care, who are more likely to have pre-existing health conditions, potentially contributing to the higher HBV prevalence. In contrast, this study's sample included a broader population, which might explain the lower infection rates.

Another study revealed a sero-prevalence of HBV of 9.6% in Katsina LGA, Katsina State in Nigeria, which is significantly higher than the 0.53% in this study suggesting that certain geographic regions, such as Katsina, might have a higher HBV burden, possibly due to different public health conditions, access to healthcare, or vaccination coverage (Olayinka *et al*. 2016)

These comparisons reinforce the importance of diagnostic testing and public health initiatives to raise awareness and implement preventive strategies.

Sources of Information

The most prominent source of information is the Internet, with a little more than half (51.3%) of respondents citing it as their primary medium, suggesting that digital platforms are increasingly influential in health education and information dissemination. Radio and television also play substantial roles, being the second and third most common sources at 49.2% and 47.3%, respectively. This highlights that traditional media still holds a strong presence in health communication, even in an era dominated by digital media. The reliance on multiple media channels indicates a diversified approach to health information, which can be advantageous in reaching a broader audience. These findings suggest that any public health campaign aimed at increasing Hepatitis B awareness could benefit from a multi-platform strategy, incorporating both digital and traditional media to effectively reach different demographic groups.

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In Ekiti, Ekiti State, Nigeria, the preferred source of health information was social media, indicating that internet usage is a key medium, similar to this study's findings where 51.33% reported learning about Hepatitis B through the internet.

Awareness

The result from this study, indicates that a substantial proportion of the respondents, about two-third, (63.0%) were aware of Hepatitis B.

This is higher than some literature studies. For example 39.5% level of awareness was reported by Agbesanwa *et al*. (2023)among Young Adults in Ekiti, Nigeria; 34.2% level of awareness was reported by Ogban *et al*. (2024) using Medical Students in Pamo University, Nigeria. A lower (32.9%) level of awareness of the Hepatitis B vaccination was also revealed in a study in Ghana (Abban *et al*. (2024).

However a higher level of awareness (96.6%) has been reported by a study among Adults Attending Ophthalmology Clinics in Southeast Nigeria (Onwuegbuna *et al*. (2021).

The substantial variations in awareness might reflect differences in the populations studied and access to information in urban vs. rural settings.

Knowledge

This study revealed that about half (51.3%) of respondents were knowledgeable about Hepatitis B. This is in consonance with a study report of 51.5% from Ghana (Abban *et al*. (2024)

Further, the study found that a little less than half {48.0%) of participants were aware of the risk factors for HBV. In addition, the study found that about two-third (62.8%) of participants had knowledge of causes and mode of transmission of HBV. So also, the study revealed that greater than half (59.3%) of participants were knowledgeable about the symptoms of HBV Infection and above two-third (64.9%) of participants knew about its prevention, reflecting a solid grasp of how to protect against the virus. Participants demonstrated a strong awareness of risk factors with an average score of 48.1%. This indicates that they are relatively informed about behaviors and conditions that increase the risk of Hepatitis B.

Summarily, the participants in this study have above average working knowledge of the essentials of HBV but with significant gaps that need to be closed through strategic educational intervention programmes

Attitude

Participants in this study expressed varying attitudes and perceptions about HBV some of which are highly concerning, requiring adequate intervention. There were expressed misconceptions that need attention. For instance, many of the participants underestimate their susceptibility or the seriousness of the disease. Further, they expressed a mixed grasp of transmission modes for HBV and the inherent risks of a number of everyday practices. These lapses do not support current global and national efforts at curtailing the scourge of Hepatitis. Strategic intervention is needed to re-focus our energies and resources towards eliminating or at least reducing the scourge of the disease.

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Correlations and Predictors

Demographic data

The relationship between age and Hepatitis B prevalence was not statistically significant.

The relationship between age and both self-reported and seroprevalence of Hepatitis B was analyzed to understand the association of different age groups with the prevalence of Hepatitis B in the study population.

The highest percentage of self-reported Hepatitis B cases is found in the age group 25-34 (0.80%), followed by the age groups 15-24 and 35-44 (0.53%), with the lowest in the age group 45-54 (0.27%). The t-test analysis of the relationship between age and self-reported and the test-prevalence of hepatitis B was estimated using Cohen's D parameter. A Cohen's D value ranging from 0.046, 0.165, and -0.359 for the variables: reported prevalence, test prevalence, and if they know anyone with a Hepatitis B infection, against age was obtained, thus indicating no statistically significant relationship between age and prevalence of hepatitis B among residents of the Ikweghwu Community. The lack of statistical significance in the relationship between age and Hepatitis B prevalence suggests that age alone may not be a strong predictor of Hepatitis B infection in this population. This finding is notable because it contrasts with some existing literature that links certain age groups with higher or lower prevalence rates due to varying exposure risks and health behaviors (Mohareb *et al*. (2022); Ajuwon *et al*. (2021)

For Gender, Occupation, Business Scale, and Marital Status, variations in self-reported and seroprevalence rates were observed. However, these differences were not statistically significant, as indicated by p-values and t-values. The absence of significant associations between Hepatitis B prevalence and factors like gender, occupation, business scale, and marital status implies that these demographic variables may not have a strong influence on Hepatitis B prevalence within this study's context. This is in contrast to some studies that find that demographic factors significantly impact disease prevalence due to differences in risk behaviors or access to healthcare. Ara *et al*. (2024); Jamali *et al*. (2024); Mohareb *et al*. (2022); Ajuwon *et al*. (2021)

This study's findings indicate that age and other demographic factors such as gender, occupation, business scale, and marital status may not be strong predictors of Hepatitis B prevalence in this specific population.

Awareness/Knowledge

This study revealed a highly significant association between heightened awareness and reduced Hepatitis B seroprevalence, with a p-value < 0.0001 and very strong correlation coefficients (RR=0.0417, r^2=0.9936). This indicates that increased awareness about Hepatitis B is strongly linked to lower rates of the disease. The extremely low relative risk (RR) and near-perfect correlation suggest that improved awareness is a crucial factor in controlling Hepatitis B. This underscores the importance of educational programs and awareness campaigns in reducing the prevalence of the disease.

Further, this study showed a significant association of knowledge with seroprevalence (p < 0.0001), with an RR of 0.02875. The negative slope of -0.03407 suggests that increased knowledge correlates with lower seroprevalence. This emphasizes the need to increase the

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knowledge level of people in our drive to fight the scourge of HBV. Indeed, enhancing knowledge is sine qua non to a successful mitigation of HBV

Understanding risk factors was associated with reduced Hepatitis B seroprevalence ($p < 0.0001$, RR=0.03113, r^2=0.9239). This means that better knowledge of what constitutes a risk factor for Hepatitis B is significantly linked to lower prevalence rates.

The study found a significant positive association between the prevalence of risk factors and Hepatitis B seroprevalence ($p = 0.0097$, RR=0.1736, r^2=0.9796). A higher prevalence of risk factors correlated with increased transmission rates. This finding reinforces the need for targeted interventions to address and mitigate risk factors, as they are directly related to higher rates of Hepatitis B infection.

Knowledge about the causes and transmission of Hepatitis B showed an extremely significant inverse relationship ($p < 0.0001$, RR=0.02146, r^2=0.9997). The near-perfect negative correlation implies that understanding how Hepatitis B is transmitted is almost perfectly associated with reduced disease rates.

Similarly, knowledge of symptoms also had a strong inverse relationship with seroprevalence ($p < 0.0001$, RR=0.02357, r^2=0.9988). This suggests that knowing the symptoms helps in early detection and prevention, thereby reducing disease prevalence. Awareness of prevention strategies was also significantly associated with reduced seroprevalence ($p < 0.0001$, RR=0.02051, r^2=0.9999). This indicates that understanding how to prevent Hepatitis B is almost perfectly linked to lower infection rates.

Attitudes

Positive attitudes towards Hepatitis B prevention and treatment were significantly associated with reduced seroprevalence ($p < 0.0001$, RR=0.05303, r^2=0.9950). The strong correlation suggests that having a positive attitude towards disease control measures plays a crucial role in reducing prevalence. This highlights the importance of fostering positive attitudes and perceptions about Hepatitis B prevention and treatment in public health strategies.

CONCLUSION

Participants in this study were predominantly young adults with more females and a high proportion of holders of OND/HND/BSC degrees.

The result from this study, which indicates that 63.0% of participants were aware of Hepatitis B, primarily through the internet (51.3%), radio (49.2%), and television (47.3%)

The study revealed a robust awareness and knowledge of Hepatitis but with significant gaps which call for specific strategic interventions to bridge.

About a third of participants incorrectly believe that Hepatitis B is caused by bacteria. Smaller percentages of participants had misunderstandings about how Hepatitis B is transmitted and its curability. A majority (64.1%) correctly identified key symptoms such as yellowish eyes, suggesting a reasonably good knowledge of some clinical signs of Hepatitis B. A significant

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portion (76.6%) recognized the risk of mother-to-child transmission, which is crucial for preventive measures during pregnancy and childbirth

The study elucidates the critical role of awareness, knowledge, and attitudes in shaping Hepatitis B seroprevalence among participants. The study reports that elevated awareness and comprehensive knowledge about Hepatitis B, causes, transmission, symptoms, and prevention strategies, are strongly correlated with reduced seroprevalence; Positive attitudes towards Hepatitis B prevention and treatment are associated with lower seroprevalence rates; and that higher prevalence of Hepatitis B risk factors correlates with increased seroprevalence.

These results highlight the need for further research to explore additional variables or interactions that might better explain variations in Hepatitis B prevalence. This could include examining behavioral, environmental, or genetic factors, as well as considering potential methodological improvements in future studies.

RECOMMENDATIONS

- Effective Educational and Public Enlightenment Programs that focus on increasing awareness and knowledge about Hepatitis B, its transmission, prevention, and treatment options are much needed. Target these programs at community centers, schools, workplaces, and healthcare facilities.
- It is worthy of note to understand the role the media can play in enhancing the level of awareness and knowledge of people about Hepatitis and this should be factored into strategies for intervention. Ensure that the messaging is culturally relevant and accessible to diverse population segments.

FUTURE RESEARCH

- There is need for further detailed studies on Prevalence of Hepatitis B and its correlates in this and surrounding communities
- There is need for more extensive sero-prevalence studies in this and surrounding communities
- Further research, incorporating a broader range of variables and contextual factors, is needed to fully understand the predictors of Hepatitis B prevalence and to inform targeted public health interventions.

CONTRIBUTIONS TO KNOWLEDGE

The study contributes valuable insights into the determinants of Hepatitis B seroprevalence, providing a foundation for developing more effective prevention and control strategies tailored to the identified key factors.

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AUTHOR CONTRIBUTION:

ROO and JFE: Conceptualization and project design,

ROO: Data collection, formal analysis and draft manuscript

JFE: Supervisor, manuscript review and approval

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